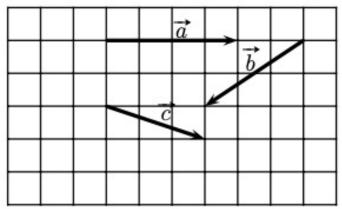
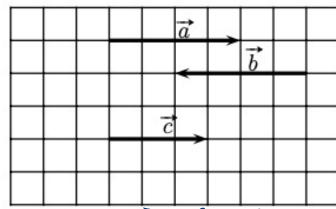
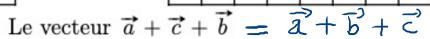
Cas 1

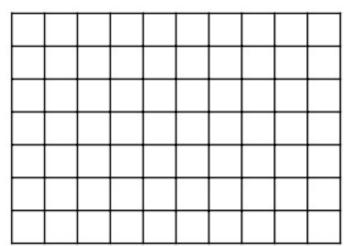


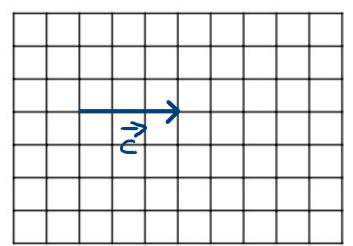
Cas 2



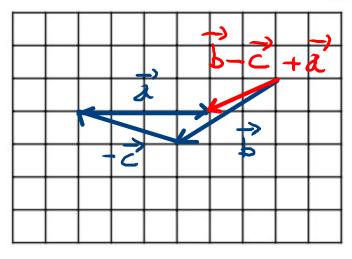
 $\vec{a} + \vec{b} = \vec{0}$

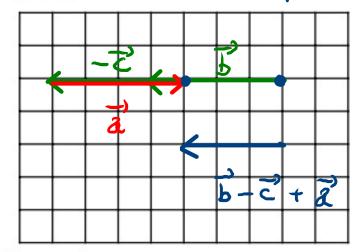


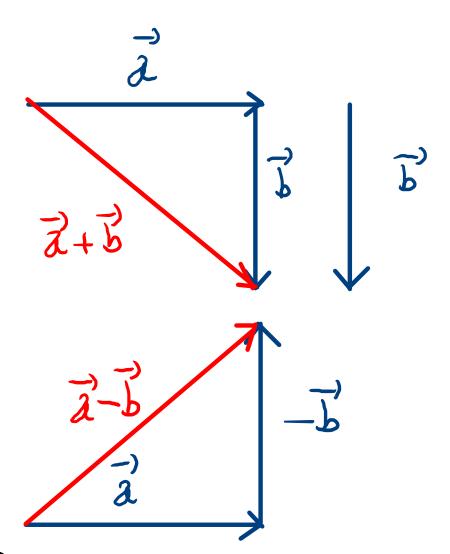




Le vecteur
$$\vec{b} - \vec{c} + \vec{a} = \vec{b} + (-\vec{c}) + \vec{a}$$







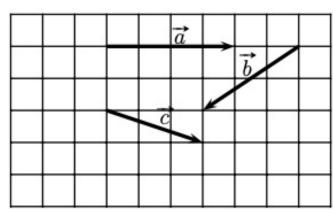
$$\vec{a}$$
 + \vec{b}

$$\vec{a} - \vec{b} = \vec{a} + (-\vec{b})$$

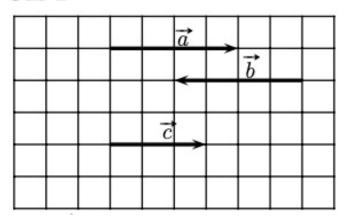
Soustraire un vecteur revient à additionner son apposé.

1.1.3 Dans chaque cas, construire le vecteur demandé.

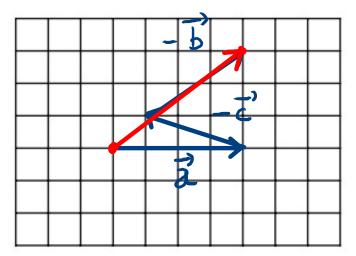
Cas 1

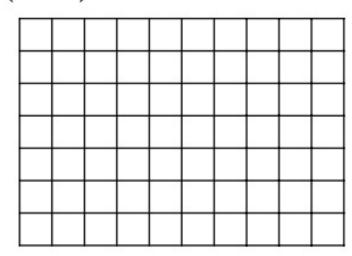


Cas 2



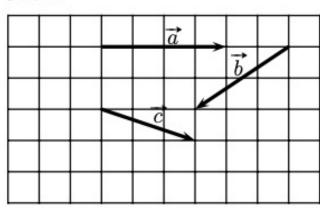
Le vecteur
$$\vec{a} - (\vec{c} + \vec{b}) = \vec{a} - \vec{c} - \vec{b} = \vec{a} + (-\vec{c}) + (-\vec{b})$$



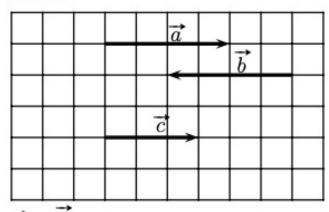


1.1.3 Dans chaque cas, construire le vecteur demandé.

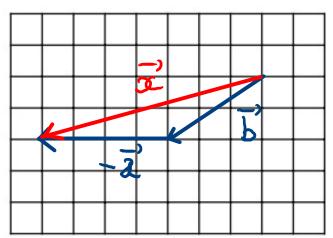
Cas 1

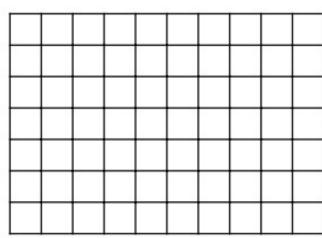


Cas 2



Le vecteur \vec{x} tel que $\vec{x} + \vec{a} = \vec{b}$





$$2 + 8 = 12$$

$$2 = 12 - 8$$

équation vectorielle

$$\vec{x} + \vec{a} = \vec{b} - \vec{a}$$

$$\vec{x} = \vec{b} - \vec{a}$$

1.1.4 Soit A, B, C, D et E des points quelconques. Sans utiliser de dessin, simplifier le plus possible les expressions suivantes :

a)
$$\overrightarrow{BD} + \overrightarrow{AB} + \overrightarrow{DC}$$

d)
$$\overrightarrow{DA} - \overrightarrow{DB} - \overrightarrow{CD} - \overrightarrow{BC}$$

b)
$$\overrightarrow{BC} + \overrightarrow{DE} + \overrightarrow{DC} + \overrightarrow{AD} + \overrightarrow{EB}$$

e)
$$\overrightarrow{EC} - \overrightarrow{ED} + \overrightarrow{CB} - \overrightarrow{DB}$$

c)
$$\overrightarrow{AC} - \overrightarrow{BD} - \overrightarrow{AB}$$

a)
$$\overrightarrow{BD} + \overrightarrow{AB} + \overrightarrow{DC} = \overrightarrow{AB} + \overrightarrow{BD} + \overrightarrow{DC}$$

$$\overrightarrow{AB} + \overrightarrow{BD} + \overrightarrow{DC}$$

$$\overrightarrow{AD} + \overrightarrow{DC} = \overrightarrow{AC}$$

$$\overrightarrow{AB} + \overrightarrow{BC} = \overrightarrow{AC}$$

c)
$$\overrightarrow{Ac} - \overrightarrow{BD} - \overrightarrow{AB} = \overrightarrow{Ac} + (-\overrightarrow{BD}) + (-\overrightarrow{AB})$$

$$= \overrightarrow{Ac} + \overrightarrow{DB} + \overrightarrow{BA}$$

$$= \overrightarrow{Ac} + \overrightarrow{DA} = \overrightarrow{DA} + \overrightarrow{Ac} = \overrightarrow{DC}$$

1.1.5 On considère le parallélépipède ABCD EFGH représenté ci-dessous. Simplifier au maximum les expressions vectorielles suivantes :

a)
$$\vec{a} = \overrightarrow{AB} + \overrightarrow{FG}$$

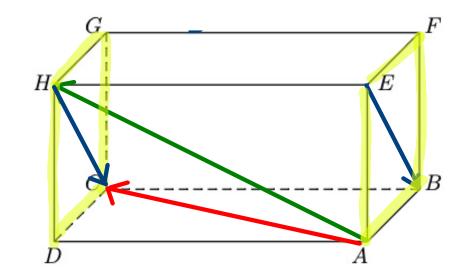
b)
$$\vec{b} = \overrightarrow{AG} + \overrightarrow{CD}$$

c)
$$\vec{c} = \vec{EB} + \vec{CA}$$

d)
$$\overrightarrow{d} = \overrightarrow{EH} + \overrightarrow{DC} + \overrightarrow{GA}$$

e)
$$\vec{e} = \overrightarrow{AH} + \overrightarrow{EB}$$

f)
$$\overrightarrow{f} = \overrightarrow{AB} + \overrightarrow{CC} + \overrightarrow{BH} + \overrightarrow{GF}$$



a)
$$\overrightarrow{FG} = \overrightarrow{EH} = \overrightarrow{BC} = \overrightarrow{AD}$$

 $\overrightarrow{a} = \overrightarrow{AB} + \overrightarrow{BC} = \overrightarrow{AC}$

e)
$$\overrightarrow{AH} + \overrightarrow{FB} = \overrightarrow{AH} + \overrightarrow{HC} = \overrightarrow{AC}$$

1.1.8 Représenter trois points A, B et P pour lesquels :

a)
$$\overrightarrow{AP} = 3\overrightarrow{AB}$$

b)
$$\overrightarrow{AP} = \frac{1}{2}\overrightarrow{BA}$$

c)
$$\overrightarrow{PA} = \frac{-3}{2}\overrightarrow{BP}$$

d)
$$\overrightarrow{PA} = \frac{-3}{5}\overrightarrow{BP}$$

e)
$$\overrightarrow{PA} = \frac{3}{7}\overrightarrow{AB}$$

f)
$$\overrightarrow{AP} = \frac{5}{-4}\overrightarrow{PB}$$

g)
$$\overrightarrow{PA} = -2\overrightarrow{PB}$$

a)
$$\overrightarrow{AP} \lor \overrightarrow{AB}$$

a) $\overrightarrow{AP} \wedge \overrightarrow{AB}$ colinéaire (même direction)

$$\overrightarrow{AP} = 3\overrightarrow{AB}$$

b)
$$\overrightarrow{AP} = \frac{1}{2} \overrightarrow{BA}$$
 \Rightarrow $2 \cdot \overrightarrow{AP} = \overrightarrow{BA}$